

Appl. No.: 09/730,188  
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Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

**Claims 1-5 (Canceled)**

**Claim 6 (Currently amended):** A waveform equalizer comprising:

- an equalizing filter unit including a delay circuit with a tap;
- a discriminator which decodes an output signal of said equalizing filter unit;
- tap arrangement control means which controls a tap arrangement of said equalizing filter unit; and
- tap coefficient monitoring unit which monitors a tap coefficient of said equalizing filter unit, and changes the tap arrangement of said equalizing filter unit so as to restart a starting step of the equalizing filter unit for equalizing a reception signal, depending upon a coefficient change state of the tap coefficient used while the reception signal is equalized;
- wherein said tap arrangement control means further comprising an impulse response predicting device for predicting an impulse response of a transfer path; and
- wherein said tap arrangement control means changes the tap arrangement of said equalizing filter unit in such a manner that said tap arrangement becomes suitable for the next impulse having a large pulse component in response to an impulse response predicted by both the equalized output of said discriminator and a condition of the reception signal.

**Claim 7 (Currently amended):** A waveform equalizer comprising:

- an equalizing filter unit including a delay circuit with a tap;
- a discriminator which decodes an output signal of said equalizing filter unit;

tap arrangement control means which controls a tap arrangement of said equalizing filter unit; and

tap coefficient monitoring unit which monitors a tap coefficient of said equalizing filter unit, and changes the tap arrangement of said equalizing filter unit so as to restart a starting step of the equalizing filter unit for equalizing a reception signal, depending upon a coefficient change state of the tap coefficient used while the reception signal is equalized;

wherein said tap arrangement control means comprising an impulse response predicting device for predicting an impulse response of a transfer path; and

wherein said tap arrangement control means changes the tap arrangement of said equalizing filter unit in such a manner that said tap arrangement becomes optimum with respect to an impulse response predicted by both the equalized output of said discriminator and a condition of the reception signal.

**Claims 8-10 (Canceled)**

**Claim 11 (Previously presented):** A mobile station wireless apparatus equipped with a waveform equalizer capable of removing an adverse influence caused by frequency selective fading, said waveform equalizer comprising:

- an equalizing filter unit including a delay circuit with a tap;
- a discriminator which decodes an output signal of said equalizing filter unit;
- tap arrangement control means which controls a tap arrangement of said equalizing filter unit;
- a tap coefficient monitoring unit which monitors a tap coefficient of said equalizing filter unit; and
- detector means which detects a moving speed of the mobile station wireless apparatus,

wherein when the moving speed is higher than a preselected threshold value, the tap arrangement of said equalizing filter unit is changed so as to restart a starting step of the equalizing filter unit for equalizing a reception signal, depending upon a change state of the tap coefficient used while the reception signal is equalized.

**Claim 12 (Previously presented):** A mobile station wireless apparatus equipped with a waveform equalizer capable of removing an adverse influence caused by frequency selective fading, said waveform equalizer comprising:

- an equalizing filter unit including a delay circuit with a tap;
- a discriminator which decodes an output signal of said equalizing filter unit;
- tap arrangement control means which controls a tap arrangement of said equalizing filter unit;
- a tap coefficient monitoring unit which monitors a tap coefficient of said equalizing filter unit; and
- detector means which detects a moving speed of the mobile station wireless apparatus, wherein when the moving speed is higher than a preselected threshold value, the tap arrangement of said equalizing filter unit is changed so as to restart reception signal equalizing steps from a preselected step prior to the present step thereof while said reception signal is equalized, depending upon a change state of the tap coefficient during the equalization of said reception signal.

**Claim 13 (Previously presented):** A mobile station wireless apparatus equipped with a waveform equalizer capable of removing an adverse influence caused by frequency selective fading, said waveform equalizer comprising:

- an equalizing filter unit including a delay circuit with a tap;
- a discriminator which decodes an output signal of said equalizing filter unit;

tap arrangement control means which controls a tap arrangement of said equalizing filter unit;

a tap coefficient monitoring unit which monitors a tap coefficient of said equalizing filter unit; and

detector means which detects a moving speed of the mobile station wireless apparatus, wherein when the moving speed is higher than a preselected threshold value, an operation is performed in which the tap arrangement of said equalizing filter unit is changed so as to restart reception signal equalizing steps from a preselected step prior to the present step thereof while said reception signal is equalized, depending upon a change state of the tap coefficient during the equalization of said reception signal; and further so as to repeatedly perform said operation, depending upon a change condition of the tap coefficient while restarting the equalization of said reception signal.

**Claims 14-19 (Canceled)**

**Claim 20 (Previously presented):** A mobile communication system having a base station and a mobile station, in which said mobile station is equipped with a waveform equalizer capable of removing an adverse influence caused by frequency selective fading, said waveform equalizer comprising:

an equalizing filter unit including a delay circuit with a tap;

a discriminator which decodes an output signal of said equalizing filter unit;

tap arrangement control means which controls a tap arrangement of said equalizing filter unit;

a tap coefficient monitoring unit which monitors a tap coefficient of said equalizing filter unit; and

detector means which detects a moving speed of the mobile station wireless apparatus,

wherein when the moving speed is higher than a preselected threshold value, the tap arrangement of said equalizing filter unit is changed so as to restart a starting step of the equalizing filter unit for equalizing a reception signal, depending upon a change state of the tap coefficient used while the reception signal is equalized.

**Claim 21 (Original):** A mobile communication system having a base station and a mobile station, in which said mobile station is equipped with a waveform equalizer capable of removing an adverse influence caused by frequency selective fading, said waveform equalizer comprising:

- an equalizing filter unit including a delay circuit with a tap;
  - a discriminator which decodes an output signal of said equalizing filter unit;
  - tap arrangement control means which controls a tap arrangement of said equalizing filter unit;
  - a tap coefficient monitoring unit which monitors a tap coefficient of said equalizing filter unit; and
  - detector means which detects a moving speed of the mobile station wireless apparatus,
- wherein when the moving speed is higher than a preselected threshold value, the tap arrangement of said equalizing filter unit is changed so as to restart reception signal equalizing steps from a preselected step prior to the present step thereof while said reception signal is equalized, depending upon a change state of the tap coefficient during the equalization of said reception signal.

**Claim 22 (Previously presented):** A mobile communication system having a base station and a mobile station, in which said mobile station is equipped with a waveform equalizer capable of removing an adverse influence caused by frequency selective fading, said waveform equalizer comprising:

an equalizing filter unit including a delay circuit with a tap;  
a discriminator which decodes an output signal of said equalizing filter unit;  
tap arrangement control means which controls a tap arrangement of said equalizing filter unit;  
a tap coefficient monitoring unit which monitors a tap coefficient of said equalizing filter unit; and  
detector means which detects a moving speed of the mobile station wireless apparatus, wherein when the moving speed is higher than a preselected threshold value, an operation is performed in which the tap arrangement of said equalizing filter unit is changed so as to restart reception signal equalizing steps from a preselected step prior to the present step thereof while said reception signal is equalized, depending upon a change state of the tap coefficient during the equalization of said reception signal; and further so as to repeatedly perform said operation, depending upon a change condition of the tap coefficient while restarting the equalization of said reception signal.

**Claim 23 (Currently amended):** A waveform equalizer equipped comprising:

an equalizing filter unit including a delay circuit with a tap;  
a discriminator which decodes an output signal of said equalizing filter unit;  
tap arrangement control means which controls a tap arrangement of said equalizing filter unit; and  
a tap coefficient monitoring unit which monitors a tap coefficient of said equalizing filter unit, and changes the tap arrangement of said equalizing filter unit so as to restart reception signal equalizing steps from a preselected step prior to the present step thereof while said reception signal is equalized, depending upon a coefficient change state of the tap coefficient during the equalization of said reception signal;

wherein said tap arrangement control means further comprising an impulse response predicting device for predicting an impulse response of a transfer path; and

wherein said tap arrangement control means changes the tap arrangement of said equalizing filter unit in such a manner that said tap arrangement becomes suitable for the next impulse having a large pulse component in response to an impulse response predicted by both the equalized output of said discriminator and a condition of the reception signal.

**Claim 24 (Currently amended):** A waveform equalizer equipped comprising:

an equalizing filter unit including a delay circuit with a tap;

a discriminator which decodes an output signal of said equalizing filter unit;

tap arrangement control means which controls a tap arrangement of said equalizing filter unit;

a tap coefficient monitoring unit which performs an operation of monitoring a tap coefficient of said equalizing filter unit and changing the tap arrangement of said equalizing filter unit so as to restart reception signal equalizing steps from a preselected step prior to the present step thereof while said reception signal is equalized, depending upon a coefficient change state of the tap coefficient during the equalization of said reception signal, and further so as to repeatedly perform said operation, depending upon a change condition of the tap coefficient while restarting the equalization of said reception signal;

wherein said tap arrangement control means further comprising an impulse response predicting device for predicting an impulse response of a transfer path; and

wherein said tap arrangement control means changes the tap arrangement of said equalizing filter unit in such a manner that said tap arrangement becomes suitable for the next impulse having a large pulse component in response to an impulse response predicted by both the equalized output of said discriminator and a condition of the reception signal.

**Claim 25 (Currently amended):** A waveform equalizer equipped comprising:

- an equalizing filter unit including a delay circuit with a tap;
- a discriminator which decodes an output signal of said equalizing filter unit;
- tap arrangement control means which controls a tap arrangement of said equalizing filter unit; and
- a tap coefficient monitoring unit which monitors a tap coefficient of said equalizing filter unit, and changes the tap arrangement of said equalizing filter unit so as to restart reception signal equalizing steps from a preselected step prior to the present step thereof while said reception signal is equalized, depending upon a coefficient change state of the tap coefficient during the equalization of said reception signal;
- wherein said tap arrangement control means comprising an impulse response predicting device for predicting an impulse response of a transfer path; and
- wherein said tap arrangement control means changes the tap arrangement of said equalizing filter unit in such a manner that said tap arrangement becomes optimum with respect to an impulse response predicted by both the equalized output of said discriminator and a condition of the reception signal.

**Claim 26 (Currently amended):** A waveform equalizer equipped comprising:

- an equalizing filter unit including a delay circuit with a tap;
- a discriminator which decodes an output signal of said equalizing filter unit;
- tap arrangement control means which controls a tap arrangement of said equalizing filter unit;
- a tap coefficient monitoring unit which performs an operation of monitoring a tap coefficient of said equalizing filter unit and changing the tap arrangement of said equalizing filter unit so as to restart reception signal equalizing steps from a preselected step prior to the present step thereof while said reception signal is equalized, depending upon a coefficient



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change state of the tap coefficient during the equalization of said reception signal, and further so as to repeatedly perform said operation, depending upon a change condition of the tap coefficient while restarting the equalization of said reception signal;

wherein said tap arrangement control means comprising an impulse response predicting device for predicting an impulse response of a transfer path; and

wherein said tap arrangement control means changes the tap arrangement of said equalizing filter unit in such a manner that said tap arrangement becomes optimum with respect to an impulse response predicted by both the equalized output of said discriminator and a condition of the reception signal.